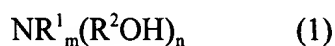


Amendments to the Claims:

1-2 (Canceled)

3. (Currently Amended) A process for forming a metal interconnect comprising the steps of forming a concave in an insulating film formed on a substrate, forming a barrier metal film on the insulating film, forming an interconnect metal film over the whole surface such that the concave is filled with the metal and then polishing the surface of the substrate by chemical mechanical polishing, characterized in that the polishing step comprises a first polishing step of polishing the surface such that a portion of the interconnect metal film remains on the surface other than the concave, the portion of the interconnect film remaining on the surface not being insubstantial, and a second polishing step of polishing the surface using a polishing slurry controlling a polishing-rate ratio of the interconnect metal to the barrier metal of 1 to 3 inclusive, until the surface of the insulating film other than the concave is substantially completely exposed, wherein in the first polishing step, the polishing slurry comprises a polishing material, an oxidizing agent, an organic acid and an alkanolamine represented by general formula (1):

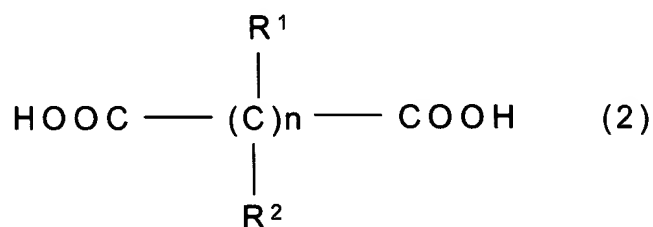


wherein R¹ is hydrogen or alkyl having 1 to 5 carbon atoms; R² is alkylene having 1 to 5 carbon atoms; m is an integer of 0 to 2 inclusive; and n is a natural number of 1 to 3 inclusive, provided that m+n is 3.

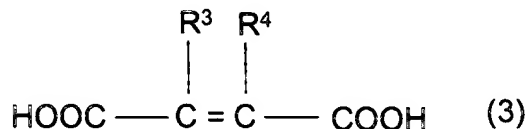
4. (Original) The process for forming a metal interconnect as claimed in claim 3, wherein the alkanolamine in the polishing slurry used is at least one selected from the group consisting of ethanolamine, diethanolamine and triethanolamine.

5. (Canceled)

6. (Previously Presented) A process for forming a metal interconnect comprising the steps of forming a concave in an insulating film formed on a substrate, forming a barrier metal film on the insulating film, forming an interconnect metal film over the whole surface such that the concave is filled with the metal and then polishing the surface of the substrate by chemical mechanical polishing, characterized in that the polishing step comprises a first polishing step of polishing the surface such that a portion of the interconnect metal film remains on the surface other than the concave, the portion of the interconnect film remaining on the surface not being insubstantial, and a second polishing step of polishing the surface using a polishing slurry controlling a polishing-rate ratio of the interconnect metal to the barrier metal of 1 to 3 inclusive, until the surface of the insulating film other than the concave is substantially completely exposed, wherein the polishing slurry used in the second polishing step comprises a silica polishing material and a carboxylic acid represented by general formula (2):



wherein n is 0, 1, 2 or 3 and each of R¹ and R² is, independently for a carbon atom to which it attaches, hydrogen, -OH or -COOH; or general formula (3):

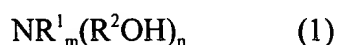


where each of R³ and R⁴ is independently hydrogen or -OH.

7. (Original) The process for forming a metal interconnect as claimed in claim 6, wherein the carboxylic acid in the polishing slurry used is at least one selected from the group consisting of oxalic acid, malonic acid, tartaric acid, malic acid, glutaric acid, citric acid and maleic acid.

8-12 (Canceled)

13. (Previously Presented) A process for forming a metal interconnect comprising the steps of forming a concave in an insulating film formed on a substrate, forming a barrier metal film on the insulating film, forming an interconnect metal film over the whole surface such that the concave is filled with the metal and then polishing the surface of the substrate by chemical mechanical polishing, characterized in that the polishing step comprises a first polishing step of polishing the surface using a polishing slurry comprising a polishing material, an oxidizing agent, an organic acid and an alkanolamine represented by the general formula (1):

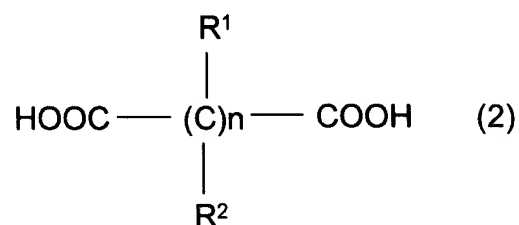


(R¹ is hydrogen or alkyl having 1 to 5 carbon atoms; R² is alkylene having 1 to 5 carbon atoms; m is an integer of 0 to 2 both inclusive; and n is a natural number of 1 to 3 both inclusive, provided that m+n is 3), such that, except for the concave portion, the interconnect metal film is substantially removed from the surface while the barrier metal film is not completely removed by polishing, and a second polishing step of polishing the surface using a polishing slurry controlling a polishing-rate ratio of the interconnect metal to the barrier metal of 1 or less, until the surface of the insulating film other than the concave is substantially completely exposed.

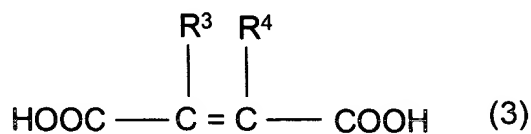
14. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the alkanolamine in the polishing slurry used is at least one selected from the group consisting of ethanolamine, diethanolamine and triethanolamine.

15. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the polishing slurry used in the second polishing step controls a polishing rate ratio of the insulating film to the barrier metal to 0.01 to 0.5 both inclusive.

16. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the polishing slurry used in the second polishing step comprises a silica polishing material and a carboxylic acid represented by general formula (2):



wherein n is 0, 1, 2 or 3 and each of R¹ and R² is, independently for a carbon atom to which it attaches, hydrogen, --OH or --COOH; or general formula (3):



where each of R³ and R⁴ is independently hydrogen or --OH.

17. (Original) The process for forming a metal interconnect as claimed in claim 16, wherein the carboxylic acid in the polishing slurry used is at least one selected from the group consisting of oxalic acid, malonic acid, tartaric acid, malic acid, glutaric acid, citric acid and maleic acid.
18. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the polishing slurry used in the second polishing step comprises a silica polishing material and an inorganic salt.
19. (Original) The process for forming a metal interconnect as claimed in claim 18, wherein the inorganic salt in the polishing slurry used in polishing is at least one selected from the group consisting of a hydroacid salt, an oxo acid salt, a peroxo acid salt and a halogen oxo acid salt.
20. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the polishing slurry used in the second polishing step comprises an oxidizing agent.
21. (Original) The process for forming a metal interconnect as claimed in claim 20, wherein the polishing slurry used in the second polishing step comprises benzotriazole or its derivative.
22. (Original) The process for forming a metal interconnect as claimed in claim 13, wherein the barrier metal film is a tantalum-containing metal film and the interconnect metal film is a copper or copper alloy film.

23-32(Canceled)

33. (Previously Presented) The process of forming a metal interconnect as claimed in Claim 6, wherein the polishing slurry used in the second polishing step controls a polishing rate ratio of the insulating film to the barrier metal of 0.01 to 0.5, inclusive.

34. (Canceled)

35. (Previously Presented) The process of forming a metal interconnect as claimed in Claim 6, wherein the polishing slurry used in the second polishing step comprises an oxidizing agent.

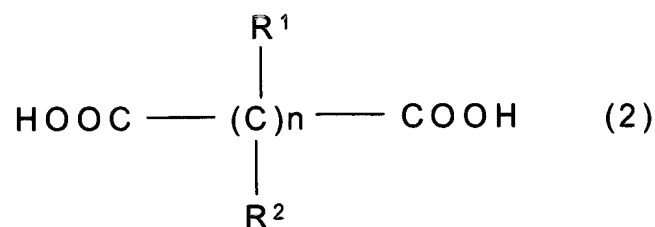
36. (Previously Presented) The process of forming a metal interconnect as claimed in Claim 35, wherein the polishing slurry used in the second polishing step comprises benzotriazole or its derivative.

37-38 (Canceled)

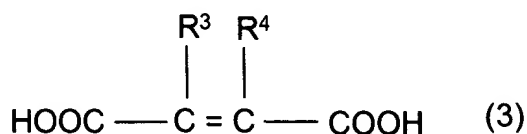
39. (Previously Presented) The process of forming a metal interconnect as claimed in Claim 6, wherein the barrier metal film is a tantalum-containing metal film and the interconnect metal film is a copper or copper alloy film.

40. (Canceled)

41. (Previously Presented) The process of claim 3 wherein the second polishing step employs a polishing slurry comprising a silica polishing material and a carboxylic acid represented by general formula (2):



wherein n is 0, 1, 2 or 3 and each of R¹ and R² is, independently for a carbon atom to which it attaches, hydrogen, -OH or -COOH; or general formula (3):



where each of R³ and R⁴ is independently hydrogen or -OH.

42. (Previously Presented) The process of claim 41 wherein the carboxylic acid is selected from the group consisting of oxalic acid, malonic acid, tartaric acid, mallic acid, glutaric acid, citric acid and maleic acid.

43. (Previously Presented) The process of claim 3 wherein the polishing slurry employed in the second polishing step is comprised of a silica polishing material and an inorganic salt.

44. (Previously Presented) The process of claim 43 wherein the inorganic salt is selected

from the group consisting of a hydroacid salt, an oxo acid salt, a peroxo acid salt and a halogen oxo acid salt.

45. (Previously Presented) The process for forming a metal interconnect as claimed in claim 3, wherein the barrier metal film is a tantalum-containing metal film and the interconnect metal film is a copper or copper alloy film.